SCORPION I TAG OPERATING DESCRIPTION

The Scorpion I Tag consists of a SAW controlled 303.825 MHz oscillator that includes a thin film single loop inductor that serves as the radiating element. This oscillator is operated in a Keyed –On-Off (KOO) under the instruction of a microprocessor. The microprocessor is programmed to turn the oscillator on periodically and transmit the Tag's unique code in a series of short pulses, before shutting down. The Tag may also have installed a mechanical motion-sensing switch that can initiate an immediate group of code transmissions before returning to its normal mode. The two Tags are identical in every respect (in terms of both hardware and firmware) except as to whether the motion sensor is installed.

The tag can operate in the operator initiated (manual) mode of operation or in a self-activation (automatic) mode of operation but not both at the same time. In manual operation, under FCC 15-231, the tag is activated by a switch when an operator or user picks up or moves the tag from one location to another with each individual activation resulting in a transmission having a unique code. When the manual activation is over the tag shuts off within 5 seconds, and for a time greater than 10 seconds, before returning to the default self-activation mode. In the self-activated mode of operation, under FCC 15-231, the tag outputs with another unique code at a period that is longer than 10 seconds or 30 times the transmission period between transmissions. If no motion sensor is installed his later mode of operation is the Tag's only mode of operation.

The transmission Pulse width is 40 microseconds, the number of pulses per transmission is 61 (randomly spaced) and the period over which these pulse transmissions occurs is 130 milliseconds. The tag then returns to its sleep mode until it is time to beacon again.